

REMARKS

The Office Action mailed on September 27, 2004 has been carefully considered and the Examiner's remarks are appreciated. Claims 1-25 were originally presented, but subsequently restricted to claims 1-5 following a restriction requirement. In response to the Office Action, Applicants respectfully request reconsideration and reinstatement of withdrawn claims 8 and 9 and reconsideration of the rejected claims, in view of the above amendments and the following remarks.

Discussion of Election/Restriction

In the restriction requirement made by telephone interview on September 17, 2004, Applicants elected claims readable on Figures 1 and 2, originally listed by the Examiner as claims 1-6, and 8. In the Office Action, however, claims 6 and 8 were additionally withdrawn by the Examiner as allegedly being drawn to non-elected species shown in Figures 3 and 4.

Applicants respectfully traverse the Examiner's decision to additionally withdraw claim 8 since it clearly reads on the elected species of Figures 1 and 2. One of the reasons cited by the Examiner in the telephone interview, was that Figures 1 and 2 do not show a "*recirculation zone*" as required by claim 8. However, it is submitted that a "*recirculation zone*" is in fact clearly shown in Figures 1 and 2 adjacent the base 101 and in the wake of the bluff body, although not expressly labeled as such. Support for the "*recirculation zone*" is found throughout the application, including page 2 paragraph 5, page 3 paragraph 6, page 6 paragraph 19, and page 8 paragraph 24, where the "*recirculation zone*" is discussed as being

present in the wake of a bluff body. With respect to Figure 2 in particular, the “*recirculation zone*” is described as the region where pressure is increased due to operation of the confluence of counter-rotating vortices which draws, turns, or otherwise redirects the flowstream in and around the trailing end.

With respect to claim 9, Applicants respectfully submit that claim 9 also clearly reads on Figures 1 and 2, and therefore was incorrectly omitted from the elected group of claims. In particular, Figures 1 and 2 clearly show “*a pair of counter-rotating vortices which confluence together downstream in the wake of the vehicle in a direction orthogonal to the flowstream.*” Furthermore, the language “*such that the confluence induces the flowstream passing over the top surface to turn down and around behind the trailing end to raise the pressure on the base surface and reduce the aerodynamic base drag*” is also clearly shown in Figures 1 and 2, with the arrows 200 representing air flow behind the bluff body shown pointing from the top trailing edge 104 down to the bottom trailing edge 107. Therefore, in a flow stream the arrows 200 represent that part of the flowstream passing over the top surface of the bluff body and down and around behind the trailing end.

Thus, it is respectfully submitted that claims 8 and 9 clearly read on the elected species shown in Figures 1 and 2, and should therefore be included in the elected claim group. In the following additional remarks, Applicants assume that claims 8 and 9 are included in the elected claims and will be examined.

Discussion of Objections to the Specification

The typo in paragraph [0025] line 8 objected to by the Examiner has been corrected.

Discussion of Rejections under 35 USC §112, second paragraph

In the Office Action, the Examiner rejected claims 1-5 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the Examiner stated that *"a pair of lift surfaces located alongside at least one of the top surface and left and right surfaces of the bluff body and extending to lift surface tips"* is indefinite. Applicants have amended claim 1 as follows:

"a pair of lift surfaces located alongside ~~at least one of the top surface and left and right side surfaces~~ of the bluff body upstream of the base surface, and extending to lift surface tips for generating in the flowstream a pair of counter-rotating trailing vortices which confluence together in the wake of the bluff body in a direction substantially orthogonal to the flowstream, and said confluence drawing the flowstream in and around behind the trailing end to raise the pressure on the base surface and reduce the aerodynamic base drag."

Any confusion allegedly caused by allowing placement of the pair of lift surfaces alongside any one or more of the top, right, and left surfaces has now been removed by the aforementioned amendments. Moreover, the amendments to claim 1 now highlight what Applicants regard as their invention, i.e. a pair of lift surfaces which is located *"alongside the bluff body"* and *"upstream of the base surface,"* regardless of the exact manner/location of attachment to the vehicle. This point is discussed throughout the specification, and is also clearly shown in the figures and drawings which the Federal Circuit has recognized as being capable of providing by themselves a written description of an invention (Vas-Cath Inc v. Mahurkar, 935 F.2d 1555). Thus, when read in view of the specification and the

teachings of the prior art, Applicants respectfully submit that these amendments reasonably apprise those skilled in the art both of the use and scope of the invention.

Similarly, Applicants submit that the language “*extending to lift surface tips*,” is sufficiently definite to apprise those of ordinary skill in the art both of the use and scope of the invention when read in light of the specification and the teaching of the aerodynamic arts and sciences. This is particularly true when read in the proper claim context of “*for generating in the flowstream a pair of counter-rotating trailing vortices...*”, and in light of the relationship between “*lift surface tips*” and “*counter-rotating vortices*” described in the specification. See, for example, the discussion of lift surface tips producing the phenomena of trailing vortices on page 7, paragraph 22. Applicants submit that this and other descriptions in the specification provide a sufficiently explicit and complete specification to enable a person of ordinary skill in the art to understand the meaning of the aforementioned claims language, and thereby practice the invention.

Regarding claim 2, the Examiner stated that “one additional pair of said surfaces for generating in the flowstream a corresponding number of additional pairs of counter-rotating trailing vortices” is indefinite. And with regard to claim 3, the Examiner also stated that “*the pair of lift surfaces are adapted to confluence the counter-rotating trailing vortices together in the same direction*” is indefinite. Similar to the discussion above, Applicants submit that both claims are definite when read in light of the specification and the prior art, and serve to apprise those of ordinary skill in the art the use and scope of the invention. In particular, the specification describes the lift surfaces as pairs, with each pair producing the confluence of

corresponding counter-rotating trailing vortices in a flowstream (see again the discussion on page 7, paragraph 22 describing this phenomena).

Discussion of Rejections under 35 USC §102(b)

In the Office Action, the Examiner rejected claims 1-5 under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 4,978,162 to Labbe. However, Applicants respectfully submit that Labbe does not expressly or inherently describe each and every element of claims 1-5 (or 8 or 9) as required by MPEP §2131 for anticipation. The Examiner stated that Labbe discloses *"a pair of lift surfaces 54 located alongside the left and right side surfaces of the bluff body..."* Contrary to the Examiner's statement, however, reference character 54 is not a pair of lift surfaces at all. Instead, it is an external contour line 54 located to the rear of the truck as described in col. 3, line 27. Furthermore, the only portions of the Labbe drag reducer arguably located alongside the vehicle are the front open ends of curved tubular channels 30 and 32 which redirect flow from the side of the truck to the rear. Clearly the curved tubular channels 30 and 32 are also not *"lift surfaces"* as defined and used in the present application for generating counter-rotating vortices.

Furthermore, claim 8 also includes similar language directed to a pair of lift surfaces which are positioned substantially alongside the bluff body. Therefore the above remarks apply equally here. And amended claim 9 includes a *"means located alongside the bluff body upstream of the base surface for generating, in a flowstream substantially parallel to the longitudinal centerline, a pair of counter-rotating vortices..."* Clearly the function of the curved tubular

channels 30 and 32 in Labbe is not to generate a pair of counter-rotating vortices as discussed above.

Applicant respectfully submits that claims 1-5, 8, and 9 are therefore in condition for allowance. Applicants respectfully request allowance of claims 1-5, 8, and 9. In the event that the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, he is respectfully requested to initiate the same with the undersigned at (925) 422-7274.

Respectfully submitted,

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